

Had the Chief Engineer been better acquainted with the practical working of railways he would scarcely have ventured an opinion so entirely at variance with its known results. Far more important railways on this continent are in successful operation, where the grades exceed that on the Welland Railway, and on which the trains must be prepared to come to a stand on any part of their line. The Boston and Albany has grades exceeding 85 feet in a mile. The Baltimore and Ohio, one of the most successful roads in America, climbs the Alleghany ridge from Piedmont at the rate of 116 feet in a mile for seventeen miles in succession, and the trains on this gradient are perfectly under control.

Moreover, it is a clearly defined principle in railway economy, where locomotive power is employed, that every company is bound, for the protection of life and property, to have sufficient break-power to control its trains on any of its grades. The chartered rights bestowed by Parliament upon the Welland Railway do not in any manner exempt that Company from the ordinary use of brakes, and it is believed that nothing more than the usual precautionary measures are necessary at this point, to render the crossing as safe as if it were on a level line.

It would undoubtedly be better and safer if draw-bridges for railways, and the crossings at grade of one railway by another, could be altogether avoided, and as traffic increases, it may yet be found expedient to substitute under or over crossings for many that are now in existence; but on a short line like the Welland, the great cost of such an alternative is not to be entertained. A crossing at grade may reasonably be resorted to, whether that grade is level or inclined; but because the best line for the canal, the best for the navigation, the best for the public interest, involves the crossing of this railway on its maximum gradient, and will put it to some inconvenience, the Chief Engineer prefers sacrificing the greater interest to the lesser. Although bound by his official position to see to the public interest, he takes the Welland Railway under his protection, and gives to Canada an imperfect canal.

The fact was pointed out by the Board of Engineers that the line through Thorold was the only line on which basins could be had on every reach, and they found no insuperable objection to establishing a drawbridge upon the gradient. It would doubtless be an inconvenience to the Railway, "but in view of the general interest of trade, it would be an inconvenience that must be submitted to as unavoidable." In the State of Massachusetts alone, according to official returns, there are no less than forty crossings at grade of one railway by another; but as a case in point, bearing upon the question under consideration, there is at Cedars Falls in Iowa a crossing of one railway by another, at grade, on an incline nearly the same as that on the Welland Railway, and where the conditions of stopping and starting trains have in like manner to be observed. There the Dubuque and Sioux City Railway crosses the Burlington, Cedar Rapids and Minnesota Railway on its grade of 78 feet in a mile, and yet the crossing on this grade has neither rendered the roads "practically useless," nor affected their "destruction as public highways." On the contrary, they are now in daily successful operation.

It must therefore appear perfectly evident, from the facts adduced, that the Chief Engineer has greatly exaggerated the difficulty of the crossing, that he has been betrayed into statements not borne out by the facts, and that the conclusions arrived at are erroneous and fraught with consequences most injurious to the best interest of the navigation.

In his futile attempt to extricate himself from an illogical position he does not confine his attention to the solution of the engineering problems under consideration.